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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,910	09/23/2003	Christopher J. Corcoran	EMI.1003	2532
7590	10/14/2004		EXAMINER	
Hayes Soloway, P.C. 175 Canal Street, 4th Floor Manchester, NH 03101-2335			JONES, JUDSON	
			ART UNIT	PAPER NUMBER
			2834	

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/668,910

Applicant(s)

CORCORAN ET AL.

Examiner

Judson H. Jones

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-34 and 43-51 is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-21, 35-37 and 42 is/are rejected.
- 7) ☒ Claim(s) 10, 22 and 38-41 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>081304</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Double Patenting***

Claims 1-9, 12 and 13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 43-52 of U.S. Patent No. 6,664,666.

Although the conflicting claims are not identical, they are not patentably distinct from each other because all the limitations of claim 1 of the instant application are in claim 43 of the '666 patent except for the limitation of the coils not extending inward of the interior curved surface. Left out of claim 1 is the limitation of a plurality of rotor magnets forming a parallelogram. Since the limitations of claim 1 are included in claim 43, claim 1 would have been obvious in view of claim 43.

Claims 14-18, 20 and 21 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,664,666.

Although the conflicting claims are not identical, they are not patentably distinct from each other because all the limitations of claim 14 of the instant application are in claim 1 of the '666 patent. Left out of claim 1 are the limitations of a second plurality of laminations, the cross linkage mechanism and first and second permanent magnets at distal ends of arms. Since the limitations of claim 14 are included in claim 1, claim 14 would have been obvious in view of claim 1.

Claim 19 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 6,664,666 in view of Fanning et al. 5,382,860 (of record). Claims 1-11 of U.S. Patent '666 discloses the motor with the laminations but does not disclose spacers separating the laminations. Fanning et al. teaches using spacers to separate the laminations of a stator in column 6 lines 35-45 for the purpose of

preventing discontinuities in the stator. Since Fanning et al. and the '666 patent are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized spacers to separate the laminations of the '666 device in order to prevent discontinuities in the stator and to thus improve performance.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 35 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Miles 4,719,381 A (of record). Miles discloses laminations with an arcuate surface orthogonal to a first side surface and a plurality of slots as shown in figure 3 and as described in column 4 lines 55-58. Page 20 of applicant's response of 9/27/2004 refers to figure 15C and states that Miles does not disclose that type of arcuate surface. Applicant is correct in arguing that the invention shown in figure 15C is not obvious over the prior art of record. However applicant's figure 15A also shows an arcuate surface, namely the arcuate surface formed by the spreaders, along with the first and second sides orthogonal to the arcuate surface and the plurality of parallel slots. Miles does disclose that type of arcuate surface.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miles in view of Fanning et al. Miles discloses the lamination with the plurality of parallel slots but does not disclose a second side surface not parallel to the first side surface. Fanning et al. teaches that flat laminations used to make round stators have a problem due to the outside diameter of a stator being larger than the inside diameter. In figure 8 Fanning et al. teaches making a wedge shaped lamination where the sides of the lamination are not parallel. Since Fanning et al. and Miles are

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from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized a wedge shaped lamination to prevent discontinuities in the flux path of the motor and thus to make the operation of the device more precise. See Fanning et al. column 5 lines 60-66.

Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lordo et al. 4,908,558 A (of record) in view of Japanese reference 62221856 (of record). Lordo et al. discloses the laminations with the plurality of slots as shown in figures 2 and 4 but does not disclose spreaders between the laminations. Japanese reference 1856 discloses spreaders in figure 2. Since Japanese reference '856 and Lordo et al. are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized spreaders in the laminated stator piece in order to route the flux to where it needed to be and to thus improve the performance of the motor. Page 41 of applicant's response of 9/27/2004 states that Lordo et al. does not disclose the type of arcuate surface as claimed. Applicant is correct in arguing that the invention shown in figure 15C is not obvious over the prior art of record. However applicant's figure 15A also shows an arcuate surface, namely the arcuate surface formed by the spreaders, along with the first and second sides orthogonal to the arcuate surface and the plurality of parallel slots. Lordo et al. does disclose that type of arcuate surface.

***Allowable Subject Matter***

Claims 22-34 and 43-51 are allowed.

Claims 10, 11 and 38-41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or teach a gimbal mechanism connected to a motor having a first coil to rotate the moving member in a first degree of freedom and a second coil to rotate the moving member in a second degree of freedom as recited in combination with the other features of claim 10. The prior art of record does not disclose or teach a motor having a first and second stator, each stator having three coils with means for controlling current to the six coils in order to position a mover in at least first and second degrees of freedom in combination with the other features of claim 22. The prior art of record does not disclose or teach a ferromagnetic lamination for use in a stator having slots and a plurality of non-uniform spreaders in combination with the other features of claim 38. The prior art of record does not disclose or teach a motor having a first and second stator with a first coil for rotating a rotor in a first degree of freedom and a second coil for rotating the rotor in a second degree of freedom in combination with the other features of claim 43. The prior art of record does not disclose or teach a method of providing force feedback to an output shaft of a motor where there are first, second and third coils overlapping each other, with at least one of the coils urging the rotor to rotate when energized in combination with the other features of claim 46.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H. Jones whose telephone number is 571-272-2025. The examiner can normally be reached on 8-4:30 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JHJ 10/12/2004



THANH LAM  
PRIMARY EXAMINER